

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA



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Order Instituting Rulemaking
Regarding Emergency Disaster
Relief Program.

Rulemaking 18-03-011
(Filed March 22, 2018)

**REPLY OF THE PUBLIC ADVOCATES OFFICE
TO COMMUNICATIONS SERVICE PROVIDERS RESPONSES
TO ASSIGNED COMMISSIONER PICKER'S RULING
REQUESTING INFORMATION ON HARDENING COMMUNICATIONS
INFRASTRUCTURE AND TO ENSURE CUSTOMER ACCESS TO 911**

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I. INTRODUCTION

Pursuant to the August 9, 2019 Assigned Commissioner’s Ruling Requesting Information on Hardening Communications Infrastructure and to Ensure Customer Access to 9-1-1 at All Times (Ruling), the Public Advocates Office at the California Public Utilities Commission (Public Advocates Office) submits the following reply comments to Communications Service Provider’s responses to the Ruling.¹ The Ruling requested that Communications Service Providers identify (1) actions taken to harden the communications infrastructure for risk, and specific locations vulnerable to catastrophic events; (2) actions taken since 2108 to present, and planned, to harden the connection between fiber and legacy copper; and (3) actions taken to harden infrastructure to ensure customer access to 9-1-1 at all times, including duration and type of backup power at specific locations.²

The Communications Service Providers’ responses clarify that because infrastructure cannot be hardened to be completely immune to disasters, they also employ disaster recovery strategies to bring damaged network facilities back into operation as soon as possible. But neither the Communications Service Provider discussions of hardening infrastructure nor recovery provide sufficient detail to alert the California Public Utilities Commission (Commission) and first responders of the network elements

¹ The following Communications Service Providers responder to the Ruling on August 29, 2019:

Pacific Bell Telephone Company d/b/a AT&T California, Teleport Communications America, LLC, New Cingular Wireless PCS, AT&T Mobility Wireless Operations Holdings, Inc., Santa Barbara Cellular Systems, Ltd; Cellco Partnership d/b/a Verizon Wireless (“Verizon”) (U 3001 C) on behalf of itself and its wireless affiliate, MCImetro Access Transmission Services; T-Mobile West LLC d/b/a T-Mobile (U-3056-C), and its affiliate Metro by T-Mobile (U-3079-C) (collectively referred to as “T-Mobile”); United States Cellular Corporation (U-3043-C) (“U.S. Cellular”), Cebridge Telecom CA, LLC (U-6996-C) on behalf of itself and California affiliates (“Suddenlink”); Charter Communications Inc. (“Charter”); Comcast Phone of California, LLC (U-5698-C), on behalf of itself and its affiliates (collectively, “Comcast”); Cox California Telcom, LLC, dba Cox Communications (U-5684-C), on behalf of itself and its affiliates (“Cox”); Frontier California, Inc. (U 1002 C), Frontier Communications of California (U 1024 C), and Frontier Communications of the Southwest (U 1026 C) (collectively, “Frontier”); and Calaveras Telephone Company (U 1004 C), Cal-Ore Telephone Co. (U 1006 C), Ducor Telephone Company (U 1007 C), Foresthill Telephone Co. (U 1009 C), Happy Valley Telephone Company (U 1010 C), Hornitos Telephone Company (U 1011 C), Kerman Telephone Co. (U1012 C), Pinnacles Telephone Co. (U 1013 C), The Ponderosa Telephone Co. (U 1014 C), Sierra Telephone Company, Inc. (U 1016 C), The Siskiyou Telephone Company (U 1017 C), Volcano Telephone Company (U 1019 C), and Winterhaven Telephone Company (U 1021 C) (collectively, the “Small LECs”).

² Ruling, p. 1.

most vulnerable in the event of a future disaster. Considering the generality of the responses and need to ensure public safety in an emergency, the Commission should require the companies to revise their responses in line with a detailed inventory or list of location-specific information. The need for confidentiality of some of this information is no excuse for failing to provide it since the Ruling specifically offered confidential submission as long as General Order 66-D standards were observed. Furthermore, the Commission should consider remedying the lack of backup power standards for wireless communications providers, since this is the predominant means of communication during emergencies.

II. DISCUSSION

A. Communications Service Providers' Responses Lack Location Detail

The Ruling's questions one and three request the specific locations vulnerable to catastrophic events and specific locations for each type of backup power. AT&T does not provide any specific location data. AT&T indicates that the shortest duration of backup power availability, involving 12% of its macro cell sites, is four hours, but does not provide details on the location of these sites.³ AT&T also indicates that remote terminals have four to eight hours of backup battery power, but does not include locations.⁴ However, while AT&T claims it continues to invest in "creating a network with diversity, intelligence, and redundancy to anticipate events and adapt to evolving conditions to provide communications services at all times,"⁵ it does not identify when and where in California this investment is occurring.

The Commission's questions are meant to get the details on such actions but yet, AT&T's responses are ambiguous. Similarly, T-Mobile's response to the Ruling omits specific location information, instead stating that it has backup power "at *virtually* all cell sites," permanent generators "at *numerous* cell sites," and "fiber backhaul to almost every

³ AT&T Response, p. 7.

⁴ AT&T Response, p. 8.

⁵ AT&T Response, p. 2.

cell site”⁶ and Verizon’s response states that it “plans for potential power outages by maintaining backup power resources at *most* of our macro cell sites.”⁷ Attachment A to these Comments shows the incomplete nature of the responses, based on a sample of four communications provider responses.

Frontier points the Commission to information on network investments provided in its annual progress report on voice and broadband deployment submitted March 29, 2019 pursuant to Decision (D.) 15-12-005, Exhibit 1, and annual reports submitted pursuant to General Order (G.O.) 104-1 and G.O. 133-D.⁸ Verizon incorporates by reference its confidential reports filed pursuant to G.O. 159A.⁹ U.S. Cellular states that the Hazardous Materials Business Plans it submits and regularly updates via the California Environmental Protection Agency’s California Environmental Reporting System contains information on cell site and central offices, as well as site maps.¹⁰

The vague and unquantified information referenced in the responses to the Ruling is not useful to the Commission. The Commission should require respondents to provide detailed location information as requested in the Ruling, or an inventory as suggested by the Public Advocates Office. On August 12, 2019, the Public Advocates Office recommended the Commission require communications service providers to share their inventory of existing backup power capacity at their facilities and plans to augment backup power at each Central Office, remote terminal, and cellular tower in their networks within 60 days.¹¹ This would allow the Commission to get a better understanding of locations vulnerable to catastrophic events, and to determine the impact of backup power on mitigating outages. The Public Advocates Office performed this type of analysis during the Sprint/T-Mobile merger by identifying (1) the number of portable and fixed

⁶ Response of T-Mobile, p. 2.

⁷ Response of Verizon, p. 4.

⁸ Frontier Response, p. 1, p. 4.

⁹ Verizon Response, p. 5.

¹⁰ U.S. Cellular response, p. 3.

¹¹ Opening Comments of the Public Advocates Office on the Assigned Commissioner’s Proposed Decision Adopting and Emergency Disaster Relief Program for Customers of Communications Providers, p. 5.

generators at key cell sites and switch facilities, (2) the duration of the backup power available, and (3) the relationship between the duration of onsite backup power and the time required to mobilize and deploy additional resources. The suite of backup power resources was reviewed relative to the number of outages due to commercial power failure over several years.¹² The Commission should require Communications Service Providers to amend their responses to provide this additional level of detail to allow a similar analysis. As the Ruling discussed, proper claims of confidentiality would be honored.

B. The Increased Pace and Severity of Disasters Merits Greater Efforts

As stated in the Ruling, “a reliable and resilient communications network is necessary to ensure public safety,” particularly “In the face of increasing threats and the loss of lives from wildfires, earthquakes, and other natural disasters....” The Ruling also notes that the record in this proceeding has illuminated the failings of notifications and calls to 9-1-1.¹³ Accordingly, the Commission’s questions seek information on improving, not just maintaining, network performance, resulting in fewer outages and less network downtime. The responses lack detail on how communications providers have prepared for increasingly adverse conditions. Consequently, the responses to the Ruling do not provide sufficient clarity on whether the communications network has improved in preparation for future natural disasters.

AT&T is particularly vague on future plans to meet the increased risk. AT&T states it is “assessing its design for providing backup power,” “assessing the need for backup power in each location,” “identifying its equipment in the areas of elevated and extreme fire risk,” and “continues to review the performance of its network in recent power outages due to electric utilities’ de-energization to consider how best to optimize

¹² See Public Advocates Office Testimony of Cameron Reed of January 7, 2019 in A.18-07-011 and A.18-07-012, pp. 25-27 and 37-38.

¹³ Ruling, p. 1.

its deployment and use of portable power generation equipment as necessary for the locations at greatest risk, including risk of wild fire.”¹⁴

Comcast,¹⁵ Frontier,¹⁶ and Sprint¹⁷ identify investments in 2018 and 2019 to harden infrastructure and increase network resiliency. Again, the general nature of the responses does not explain how and why decisions are made to provide varying amounts of backup power in different locations. Nor do the responses explain what lessons were learned in the case of past network failures.

1. AT&T’s Judgment on Route Diversity Is in Question

AT&T uses the 2018 Camp Fire as an example of when route diversity would not have been effective, claiming that “because fire perimeters can never be known in advance, the purported benefit of simply creating diverse routes is illusory.”¹⁸ However, AT&T’s judgment on the value of route diversity is called into question by the Federal Communications Commission (FCC)’s recent analysis of an AT&T outage. In May 2018, the FCC found that an outage which left 1,473 of AT&T’s unique callers in California unable to reach 9-1-1 directly (for five hours) was caused by AT&T’s failure to maintain separate logical paths to safeguard its assets to avoid single points of failure.¹⁹

2. The Commission Should Adopt Backup Power Requirements for Wireless Carriers Comparable to those for Wireline Carriers

Based on the Communications Service Providers’ information provided in response to the Ruling, the Commission can confirm that most of the wireless carriers have the capacity to provide some level of emergency backup power. However, because the Commission is unable to determine the specifics of the, location, type and duration of

¹⁴ Response of AT&T, pp. 8-9.

¹⁵ Comcast Response, pp. 2-3.

¹⁶ Frontier Response, p. 3.

¹⁷ Sprint Response, p. 3.

¹⁸ Response of AT&T, p. 5. n47 CFR §12.4(c)(3)(i), FCC 911 Reliability Rules; requirements for communications providers require diversity audits of portions of communications provider networks.

¹⁹ See FCC’s March 8th, 2017 AT&T VoLTE 911 Outage Report and Recommendations Public Safety Docket No. 17-68A, at paragraphs 3, 25-27.

backup power available, it cannot make a determination on whether the current state of backup power supply is sufficient or whether the investments and restoration resources are equitably distributed throughout the network. Sprint and Verizon state they are in compliance with FCC backup power requirements; however the FCC's wireless backup standards are voluntary. The FCC does not require wireless communications providers to provide backup power at cell sites.²⁰ From time to time, the FCC publicly reminds 9-1-1 service providers of the importance of following industry-developed best practices in light of wireless outage trends suggesting that they have not been adequately implemented.²¹

In contrast, the FCC standards for wireline communications providers are mandatory. Wireline communications providers are required to take the following reasonable actions to provide a reliable 9-1-1 network:²²

1. Conduct diversity audits to eliminate single points of failure in critical 911 circuits.
2. Provide backup power for 72 hours at full office load at central offices that serve selective routers and 24 hours at central offices that serve PSAPs²³
3. Conduct network monitoring.

Both the FCC and CPUC have considered mandating backup power standards for wireless communications providers but have never implemented such standards. The FCC considered an 8-hour backup power supply rule in 2007.²⁴ Title 47 of the Code of Federal Regulations (47 CFR.) §12.2 would have required wireless cellular carriers, with some exceptions, to have an emergency backup power source for all facilities, including

²⁰ See 47 CFR § 12.4(c):

²¹ See FCC's Public Safety and Homeland Security Bureau Reminds Telecommunications Service Providers of Importance of Implementing Network Reliability Best Practices. Public Notice, DA 17-672 (PSHSB rel. July 12, 2017) (2017 Best Practices PN).

²² 47 CFR §12.4(c).

²³ Public Safety Answering Point (PSAP).

²⁴ FCC Rule 47 C.F.R. §12.2 (regarding Backup Power) was created on October 2, 2007.

central offices, and cell tower sites.²⁵ 47 CFR §12.2 was a direct response to the failure of numerous cell sites in the aftermath of Hurricane Katrina, and required 8 hours minimum of backup power at cell sites.²⁶ This rule never took effect and was ultimately vacated in its entirety on November 1, 2011 after being contested by CTIA and other entities.²⁷

The Commission has forgone previous opportunities to impose state-specific backup power requirements on cell sites.²⁸ Shortly after the FCC's actions in 2007, in D.08-09-014, the Commission declined to impose a State-specific backup power requirement for utility transmission assets, including cell sites, while the FCC's rules were pending. In D.10-01-026, the Commission ordered consumer education about backup power at the residence or other location where Voice over Internet Protocol (VoIP) service is located but did not require the carriers to provide backup power at their facilities.²⁹ Finally, the Commission recently recommended that the FCC strengthen its rules regarding the availability of back-up power for Originating Service Providers and 9-1-1 Service Providers during natural disasters.³⁰

In the recent *Decision Adopting an Emergency Disaster Relief Program for Communications Service Provider Customers* adopted in this proceeding, the Commission clarified that it has the authority to impose additional requirements on Communications Service Providers (including wireless and VoIP providers) to ensure the

²⁵ Order on Reconsideration, in re *Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, FCC Order 07-177 (October 4, 2007), Appendix B, Final Rule Changes.

²⁶ See 47 CFR §12.2 created in rulemaking FCC 07-177, *Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, October 2, 2007. <https://docs.fcc.gov/public/attachments/FCC-07-177A1.pdf>

²⁷ CTIA-The Wireless Assn. v FCC, July 31, 2009 Order, at 2009 U.S. App. LEXIS 17031. See also, "FCC Will Not Override Rejection of its Backup Power Order," at <https://wia.org/fcc-will-not-override-rejection-of-its-backup-power-order-sp-646072066/>.

²⁸ D.08-09-014, p. 4.

²⁹ D.10-01-026, p. 24.

³⁰ Comments of the California Public Utilities Commission, FCC Public Safety Docket 11-60 (February 4, 2019) p.7. Available at <https://ecfsapi.fcc.gov/file/10204213568217/PS%20Docket%20No.%2011-60%20CPUC%20Comments%20to%20FCC%20on%20Wireless%20Resiliency%2C%202-4-2019.pdf>.

provision of safe and adequate service.³¹ Wireless carriers should be required to take reasonable actions to ensure their customers have access to essential 9-1-1 services in the event of an emergency. Given the increased reliance on wireless service, it does not make sense that rules are only in place to ensure 9-1-1 reliability for wireline customers, which represent a small fraction of communications customers.³² The Public Advocates Office urges the Commission to require Communications Service Providers to supplement their responses to the Ruling and provide a detailed inventory or list of location-specific information to alert the California Public Utilities Commission (Commission) and first responders of the network elements most vulnerable in the event of a future disaster.

III. CONCLUSION

Company responses provide no clarity of 9-1-1 safeguards in place or assurance that network reliability and resiliency will measurably improve in order to better serve the communication needs (of customers as well as first responders) during emergencies and disasters. The Commission should move forward by requiring Communications Service Providers to supply more detailed location and technical information, and by considering wireless network backup power standards. This is a critical step to take in the interest of public safety.

Respectfully submitted,

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³¹ D.19-08-025, p. 10-15.

³² https://www.huffpost.com/entry/wireless-cell-service-sandy_n_2072287

ATTACHMENT A

APPENDIX A

Summary of Sampled Communications Provider Responses to Ruling¹

Backup Power	AT&T			Verizon Wireless (Cellco)			T-Mobile			Sprint		
	No. Sites Available	Run-Time	Source	No. Sites Available	Run-Time	Source	No. Sites Available	Run-Time	Source	No. Sites Available	Run-Time	Source
California												
Central Office (9-1-1 Selective Routers)	100%	72-96 hrs.	Generator/battery	?	?	?	?	?	?	?	?	?
Mobile Telephone Data Centers	100%	72-96 hrs.	Generator/battery	?	?	?	?	?	?	?	?	?
Remote Terminals	?	4-8 hrs.	Battery	?	?	?	?	?	?	?	?	?
Macro Cell Sites	78%	? + 4 hrs.	Portable Generator + 4hrs battery	"most"	8 hrs. max/?	Portable Batteries/Portable Generators	"virtually all cell sites"	?	Permanent Battery	"Most of Sprint's sites"	7 hrs.	Battery Backup
Macro Cell Sites		72-120 hrs+2 hrs.	Fixed Generator + 2 hrs. battery		24-72 hrs.	Fixed Generator + battery	"essentially all cell sites"	?	Fixed Generator	"Various areas of the county"	"more extended periods of time"	Fixed Generator

¹ Ruling filed by CMMR/PICKER/CPUC on 08/09/2019 Conf# 137731, page 2: "Parties that have wireless, wireline, and full-facilities based operating authority are ordered to file and serve comments on the questions presented below, no later than 20 days from the date of the issuance of this ruling."

Assets	AT&T			Verizon Wireless (Cellco)			T-Mobile			Sprint		
	Available	No.	Run-Time	Available	No.	Run-Time	Available	No.	Run-Time	Available	No.	Run-Time
California												
Battery Backup	Yes	?	2-4 hrs.	Yes	?	8 hrs. max	Yes	"virtually all cell sites"	?	Yes	?	"average of 7 hours"
Fixed Generator	Yes	?	72-120 hrs.	Yes	?	24-72 hrs.	Yes	"all switch locations"	?	Yes	?	?
Portable Generator	Yes	?	?	Yes	"fleet"	?	Yes	?	?	Yes	"fleet"	"vary greatly"
Fiber Backhaul	Yes	?		YES	?		Yes	"almost every cell site"		Yes	0-4,249	
COWs ²	Yes	?		YES	?		Yes			Yes		
COLTs ³				YES								
/SatCOLTs ⁴	Yes	30		YES	?		Yes			Yes	?	
RATs ⁵				YES	?							
RETs ⁶				YES	?					Yes	?	
SPOTs ⁷				YES	?							
Macro Cell Sites	Yes	6,000		Yes	?		Yes	?		Yes	?	
Central Office	Yes	20,000		Yes	?							

² COW: Cells on Wheels

³ COLT: Cells on Light Trucks

⁴ SatCoLT: Satellite Cells on Light Truck

⁵ Repeaters on Trailers

⁶ Remote Electronic Tilts

⁷ Satellite Pico Cells on Trailers